DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-001254
Date Inspected: 15-Jan-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 900
OSM Departure Time: 2000
Location: Shanghai, China

CWI Name:	Cui Yi Ru	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☑ Yes ☐ No ☐ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☐ Yes ☑ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☐ Yes ☑ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Tower mock ups and OBG components

Summary of Items Observed:

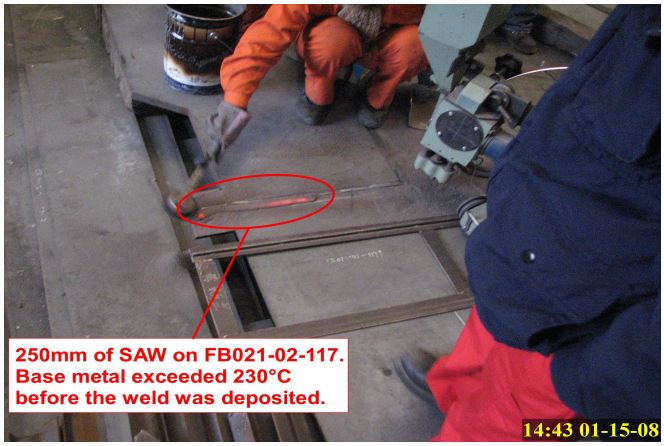
The Caltrans Quality Assurance (QA) inspector, Scott Croff, was present at Zhenhua Port Machinery Company, Ltd (ZPMC) to observe the scheduled mock up construction and production construction of the SAS Superstructure.

Tower Shop: The QA inspectors Scott Croff and John Tracy were making random observations of work in progress on the 89 meter mock up and noticed that the root opening between skin plates D and E appeared to exceed the designed requirements. The QA inspectors observed that the root opening measures 4.0mm at this time. The QA inspectors were unable to confirm the required root opening dimensions at this time. The QA inspector John Tracy had conversations with ZPMC Quality Control (QC) personnel who were present at this work location. The QA inspector Scott Croff relayed the observations of the root openings to the QA inspector Bruce Berger, so that follow up could be done.

Bay 3: The QA inspector was making random observations of work in progress in Bay 3. As the QA inspector was walking through the bay, the QA inspector was alerted by a ZPMC worker's activities. The QA inspector observed a ZPMC worker using shielded metal arc welding (SMAW) on SP070-01. The QA inspector noted that the welder's assistant alerted the welder as soon as he saw the QA inspector. The welder stopped working and promptly left the work area. The QA inspector noted that the welder's assistant then began to grind the area that was observed being welded. The QA inspector noted that the fillet weld was previously welded and this appears to have been a repair that was being made to weld 001. Upon closer examination by the QA inspector, there appeared to have been no preheating before the welding, as there was no torch or any other device near by that could have been used for preheating. The QA inspector noted that the ambient temperature is approximately 3°C

and preheating would be required for any type of welding. The QA inspector was also unable to identify the filler metal that was being used for the welding, apparently the welder took the welding electrode when he left the area. The QA inspector asked ZPMC QC personnel who were monitoring work in Bay 3 if they were aware of what repairs were being made on SP070-01-001. The CWI Hu Wei Qing, the CWI Xu Xian Ping and the QC Liaison "Ken" Zhang Jiadi were unable to provide any information about the welding the QA inspector had observed.

Bay 7: The QA inspector randomly observed submerged arc welding (SAW) on floor beam diaphragm components. As the QA inspector was making the random observations, the QA inspector noted that the Lead CWI, CWI and other ZPMC personnel who were present did not appear to be monitoring the inter-pass temperature of base metals. The QA inspector noted that the total weld length is approximately 500mm and there is very little time elapsing between each SAW pass. As the QA inspector observed the 3rd weld pass, the QA inspector used a 230°C temperature indicating crayon and observed that the crayon easily melted 150mm before the weld in progress. The QA inspector showed the Lead CWI Cui Yi Ru the observed temperature. The Lead CWI used an infrared temperature gun and directed the welders to stop after he observed that the 230°C inter-pass temperature was exceeded. The QA inspector measured that 250mm of weld had already been deposited. See the attached photo.



Summary of Conversations:

As noted above, the QA inspectors Scott Croff and John Tracy had conversations about the observed root opening on the 89 meter tower mock up. The QA inspectors discussed the appearance of the root openings and noted that before the 89 meter mock up assembly was moved from Bay 2 the root opening appeared to be less than 4mm.

The QA inspector John Tracy remarked that tack welds on other joints appeared to have cracks after the 89 meter mock up was moved. The QA inspectors were unable to make observations of the tack welds as there was limited access to that area. The QA inspector Scott Croff relayed information of these observations to the QA inspector Bruce Berger.

As noted above, the QA inspector Scott Croff had conversations with ZPMC QC persons Hu Wei Qing, Xu Xian Ping and "Ken" Zhang Jiadi. The conversations are described above and relate to the observation of welding that was being conducted. The QA inspector's questions were not answered and it appears that QC personnel were not aware of the welding that was being conducted on SP070-01-001. The QA inspector Scott Croff then relayed this information to the QA inspector Robert Cuellar and was directed to write and incident report. There were no other notable conversations during this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Croff,Scott	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer